

**WHAT IS CLAIMED IS:**

1. A portable device for detection of fluorescence in a sample containing a fluorophore, comprising:

(a) a light source for emitting light for exciting the fluorophore, wherein said light is of a defined wavelength range; and  
(b) a photodetector for detecting emitted light from the excited fluorophore.

2. The device of claim 1, wherein said light source is characterized by being at least one of a low power or a low cost.

3. The device of claim 2, wherein said light source comprises a low power light source having a power consumption not greater than about 500mW.

4. The device of claim 3, wherein said power consumption is less than about 200mW.

5. The device of claim 4, wherein said power consumption is less than about 120mW.

6. The device of any of claims 1-5, wherein said light source comprises a LED (light emitting diode).

7. The device of claim 6, wherein said light source comprises a LED having a luminous intensity from about 1mCD to about 10CD.

8. The device of claim 7, wherein said luminous intensity is from about 10mCD to about 1CD.

9. The device of any of claims 1-8, wherein said light source emits a colored light.

10. The device of any of claims 1-9, wherein said light source emits at least one of UV (ultraviolet) light or infra-red light.

11. The device of claims 9 or 10, wherein said light source emits said colored light through an alteration and/or an addition to said light source.

12. The device of any of claims 9-11, further comprising a filter for filtering light emitted from said light, wherein said colored light is formed through said filtering.

13. The device of claim 12, wherein said filter comprises a wide bandwidth excitation filter.

14. The device of either of claims 12 or 13, wherein said filter comprises a gelatin filter.

15. The device of any of claims 9-14, wherein said colored light comprises at least one of light having a wavelength in the visible spectrum and light having a wavelength outside the visible spectrum.

16. The device of any of claims 6-15, wherein said colored light is selected from the group consisting of ultraviolet, white, blue, green, yellow-green, yellow, orange, red, and infra-red.

17. The device of any of claims 1-16, further comprising a filter for filtering said emitted light from said light source.

18. The device of claim 17, wherein said filter is selected according to said defined wavelength range.

19. The device of claims 17 or 18, wherein said filter is selected according to a preferred wavelength or wavelengths for exciting the fluorophore.

20. The device of any of claims 1-19, further comprising a plurality of light sources.

21. The device of claim 20, wherein said plurality of light sources is arranged in an array.

22. The device of any of claims 1-21, wherein said photodetector is of low cost and/or of low sensitivity.

23. The device of any of claims 1-22, wherein said photodetector includes one or more of any regular photodiode, a photocell, a phototransistor, a noncooled CCD (charge-coupled device), a photoresistor, a sensor photodiode, or an array thereof.

24. The device of claim 23, wherein said photodetector comprises a photodiode.

25. The device of claim 23, wherein said photodetector comprises a CCD.

26. The device of any of claims 1-25, wherein an exposure time of said photodetector is in a range of from about 1/100 seconds to about 60 seconds.

27. The device of claim 26, wherein said exposure time is in a range of from about 1/70 seconds to about 1/10 seconds.

28. The device of any of claims 1-27, wherein the fluorophore emits light in a near red or infrared range.

29. The device of any of claims 1-28, further comprising a filter for filtering emitted light from the excited fluorophore.

30. The device of claim 29, wherein said filter is selected according to a wavelength or wavelengths of said emitted light from the excited fluorophore.

31. The device of claims 28 and 29, wherein said emitted light from the excited fluorophore is filtered with a 590nm Long Pass filter.

32. A system for detection of fluorescence in a sample containing a fluorophore, comprising:

- (a) a portable device according to any of claims 1-31; and

(b) a computational device for performing a computation.

33. The system of claim 32, further comprising:

(a) a peripheral device.

34. The system of claim 33, wherein said peripheral device comprises any one or more of a display device, a printer, or a connector to a wired or wireless network, or a combination thereof.

35. The system of any of claims 32-34, further comprising a lateral flow immunochromatography device for holding the sample and optionally one or more reagents.

36. A method for detecting fluorescence in a sample containing a fluorophore, comprising:

providing a portable device according to any of claims 1-32;

entering the sample is preferably entered to said portable device;

emitting light by a light source of said portable device, thereby exciting the fluorophore; and

detecting light emitted from the excited fluorophore by a photodetector.

37. The method of claim 36, further comprising:

providing a system according to any of claims 33-35.

38. The method of claim 37, further comprising:  
performing one or more computations on a signal obtained from said  
photodetector.

39. The method of claim 38, further comprising:  
displaying a result of said one or more computations.